RESEARCH FILE

April 1997 • Volume 2, No. 1

Undergraduate enrolment forecasts: A tricky science

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For 17 years, undergraduate enrolment at Canadian universities charted a steady climb. Then suddenly in 1993, full-time enrolment leveled off at around the 500,000 mark, and has remained relatively stable ever since.

Is current enrolment simply a lull in a cyclical growth pattern? Does it provide an indication of future stability? Or is it perhaps the harbinger of a downward shift?

This analysis begins by exploring the factors that influence demand for a university education, focusing on full-time undergraduates 18 to 21- years-old, the prime age when students are starting university or are in the early stages of a degree program. The second part of the paper examines the institutional situation, and looks at whether students are instead flocking to other parts of the postsecondary system.

First, a definition: What is "demand"? In the context of university enrolment, the concept of demand is anything but straightforward. From a statistical perspective, it is extremely difficult to detect

Highlights

- After 20 years of growth, undergraduate university enrolment has stabilized at the 500,000 mark, and has stayed at that level since 1992.
- Enrolment shifts are caused by a complex set of interwoven factors. When making enrolment forecasts, all of the factors that shape university undergraduate enrolment need to be considered together.
- The current change in enrolment can be traced back to a simultaneous decline in many of the factors affecting enrolment:
  - the size of the 18-to-21-year old population group has stabilized;
  - the economy, although out of a recession, is not growing strongly and therefore has no major impact on enrolment;
  - the value of a university degree has hit a plateau;
  - tuition costs have gone up significantly creating a barrier for some students;
  - both family income and family size have remained steady;
  - personal savings rates have declined sharply;
  - student assistance has moved to a mainly loan-based system leading students who are debt averse to increasingly question their decision to enrol at university;
  - recent graduates are facing real incomes at about the same level as graduates in the 1980s.
- Meanwhile, prospective students are being bombarded by mixed messages about the value of a degree, and universities are experiencing the pressures of years of funding cutbacks.
- Taken together, these factors make it doubtful that enrolment will grow significantly in the short-term — but large scale drops are also unlikely.
- Enrolment patterns will only change if there is intervention — from governments, universities or other sources — to tip the scales in any of these factors.

when student demand for university education is growing and when it is flagging. Increased retention of university students and the delayed entry of older students to university make it difficult to determine the causes of enrolment growth. The management strategies of universities can cause enrolment to rise at the same time as demand is cooling, and can also constrain growth in periods of growing demand. Hence enrolment is not a satisfactory proxy for demand.

The most straightforward way to measure demand would be through a consistent set of application statistics. Unfortunately, no national data on student applications exist. The Ontario Universities' Application Centre does collect university application statistics in Ontario. However, discussions with institutional analysts in that province and nationally raise serious questions about the use of application statistics as a proxy for demand. Rather than reflecting a drop in demand, analysts say factors such as increases in application fees and provision of better information about entry requirements are responsible for a decline in spurious, multiple applications. The time series has been "broken" because only the more serious students are applying.

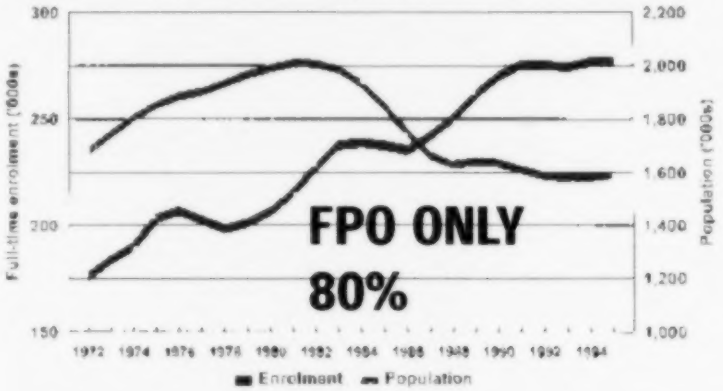
Another proxy — though still not a full equivalent for demand — is the participation rate, the percentage of the target population choosing to attend university. Analysis can chart the demographics of demand in terms of relative changes in participation, rather than the absolute numbers of young people in the population or at university. This is the approach generally followed in this paper.

Demographic trends

In his bestselling book, University of Toronto professor David Foot says demography is a powerful tool that explains "two-thirds of everything." Unfortunately, as he goes on to explain in his book, university enrolments are not predictable in the same way as elementary and high school enrolments. In fact, enrolment forecasts based solely on population figures are usually wrong.

The second period of enrolment growth, in the first half of the 1980s, saw an increase of more than 20 per cent, despite the beginning of the demographic downturn in the 18 to 21-year-old cohort — contradicting all projections of that era, and catching university administrators unawares. The mid-1980s experienced the steepest population downturn in this age group during the 25-year period under study, yet this phase was marked by only a minimal decline in the enrolment of 18 to 21-year-olds.

Enrolment versus population (18-21 age group)



It is difficult to establish any solid relationship between population and enrolment in the 18 to 21-year-old age group, or "cohort." Over the last 25 years, there have been three spurts of enrolment growth, but only one happened while the 18 to 21-year-old cohort was growing.

The first phase of enrolment growth in the early to mid-1970s paralleled a similar growth in the population aged 18 to 21, but the subsequent decline in enrolments in the late 1970s ran counter to continued growth in the age group.

In the third growth period during the late 1980s, enrolments rebounded despite slight declines in population. In the last few years, both enrolment and the 18 to 21-year-old population have stabilized, remaining virtually constant through 1996.

Over the next 15 years (1996-2011), the population in the 18 to 21 age bracket is expected to grow by almost 15 per cent (as a result of the so-called baby boom echo effect).

Participation rates

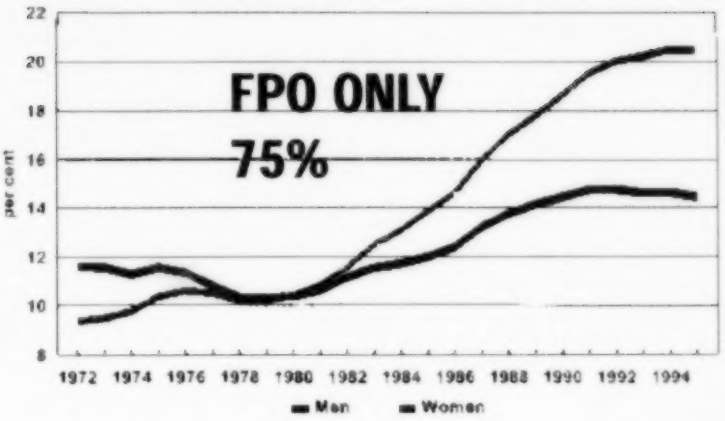
Another way of looking at this same demographic information is by analyzing the participation rate, which is the ratio of students to population in the same age group. Since 1979, participation rates have climbed steadily, quite independently of population fluctuations in this age group.

In the early 1970s, around 10.5 per cent of this prime age group was enrolled at university, with the percentages higher for men than women. By the end of the decade, although the overall average was unchanged, the participation of men and women was virtually identical, at just under 10.5 per cent.

Participation then climbed steadily to more than 17 per cent by 1996. Women's participation showed a striking increase to 20.5 per cent, but now appears to have reached a plateau. The men's rate grew much more slowly and has leveled off in the past five years at 14.5 per cent.

If participation rates continue at these levels, future enrolment would grow with the expected growth in population. But factors such as the current minor downturn in the participation of men and the leveling off of the rate for women have led many to question the assumption of constant participation rates. If instead participation declines by two percentage points to about 15.5 per cent, this would offset any gains related to population growth, and enrolment would remain at its present level. Alternatively, participation rates could rebound from the current lull and experience the kind of unexpected growth that took place during the early 1980s. The scenario which proves realistic depends on the complex interplay of factors affecting demand and supply which we examine in this paper.

Participation rates (18-21 age group)



Understanding demand

The current plateau in participation serves as a reminder that the university community can rely neither on past trends in participation nor on demographic growth to predict future demand.

What is needed now is a broader understanding of the various dimensions of demand that interact to influence participation rates — for example, economic cycles and structural changes in the economy, changing perceptions of the value of a university education, and the practical issue of paying the costs.

It is also clear that some of the factors will have larger and more immediate impacts on the behavior of certain groups of prospective students. The decision to go to university is not a quick, spur-of-the moment choice, but rather is a value-laden process, mulled over for a long period of time. For many, the choice is which university to go to, but for others the issue is whether to go at all. For some of the latter group, perhaps the first to consider attending university in their family, the decision remains open right up to the final days. It is these students who determine enrolment growth trends, because their behavior is most susceptible to influence by the demand factors described here.

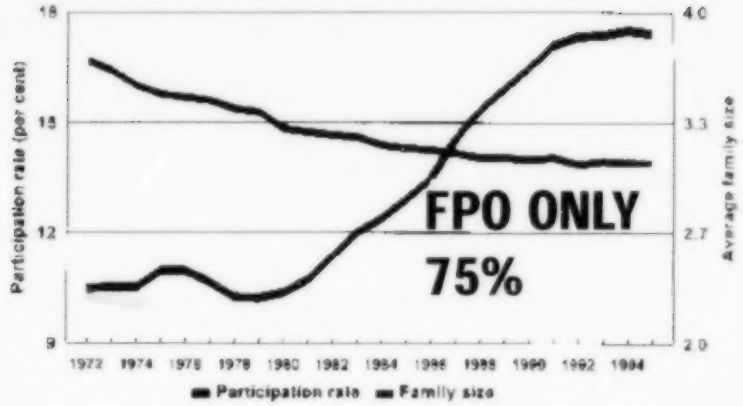
The "cohort effect"

There is some evidence of a link between participation growth trends and the size of a population cohort. This "cohort effect" is related to the number of children per family unit. If families have fewer children, they have more resources per family member to devote to education.

Recent unpublished studies by the Ontario Ministry of Education and Training* and Human Resources Development Canada** found that these

* A series of four papers on *The Demand for Postsecondary Education in Ontario.*
** Ongoing work at the Strategic Policy Branch at HRDC.

Participation rate (18-21 age group) versus family size



variables had a strong statistical relationship with enrolment trends in the 1980s. In the 1970s, however, they did little to explain fluctuating participation rates.

In the current decade, both the size of the 18 to 21-year old age group and the number of children in a family have stabilized. These variables can thus be expected to play a less important role in driving enrolment growth in the short and mid-term, while other social, economic and political factors become more important.

Social values

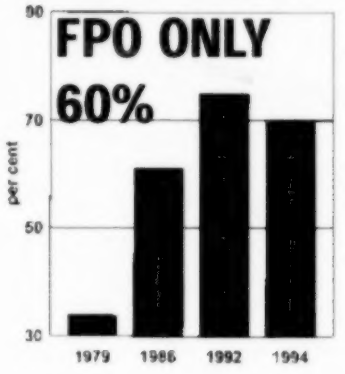
Among key factors affecting enrolment are the social values that young people absorb through the socialization process. An attitudinal environment is created which influences their decisions about university studies. Friends, peers, family members, teachers and the media are all sources of opinions and perceptions about the desirability of postsecondary education.

A very positive attitude toward university education over the past years has been found in a series of surveys of Ontario residents carried out by the Ontario Institute for Studies in Education[1]. When asked: "In your opinion, how important is a university or college education today?", the proportion of respondents saying "very important" grew from 34 per cent in 1979 to 61 per cent in 1986, and to 75 per cent in 1992.

This increasingly positive attitude undoubtedly contributed to the significant rise in enrolment growth rates throughout most of this period, at a time when the population in the main feeder cohort (18 to 21-years-old) was decreasing rapidly.

However, there are limits to growth. In the 1994 OISE survey, the proportion that said they considered a university or college education "very important" fell back to 70 per cent. Even though this is still a large majority, it is no longer growing, and, in any case, likely cannot grow much more. In contrast, any future decline in positive perceptions could have a negative effect on university participation.

Proportion of Ontarians who rate post-secondary education as very important



Economic cycles

Growth in the economy generally has a negative impact on university enrolment. The Canadian economy has passed through five distinct economic cycles in the last quarter century. A similar pattern is evident in enrolment growth, but with the cycles reversed: when the economy stalls, the rate of increase in enrolment goes up; as the economy improves, enrolment growth rates slow.

This inverse relationship can be attributed to the fact that, when the economy is growing, young people have a wider range of choices. Employment promises greater returns, at least in the short term. In times of economic recession, more students attend university because there are fewer jobs available and the pay is low — in other words, the opportunity cost is lower.

In the future, economic cycles will continue to exercise a push-pull effect on participation rates. The economic recovery since the 1992 recession, albeit weak, has no doubt improved job prospects for some youth, although not nearly to the same degree as in earlier economic cycles. In the next few years, continued economic recovery and growth can thus be expected to have a slight negative impact on participation levels.

Structural change

The restructuring of Canada's economy over the past 25 years has had a clear impact on demand for a university education — negative in the late 1970s, and positive since the mid-1980s.

In the late 1970s, the economic boom created thousands of well-paying steady jobs, especially in male-dominated occupations in the manufacturing sector, which attracted many high school graduates who might otherwise have gone to university. University participation declined, particularly among men. But manufacturing jobs disappeared in the 1982 recession, and did not return in the subsequent recovery or in the most recent economic cycle. Employment opportunities for those without postsecondary education have never returned to the highs of the late 1970s.

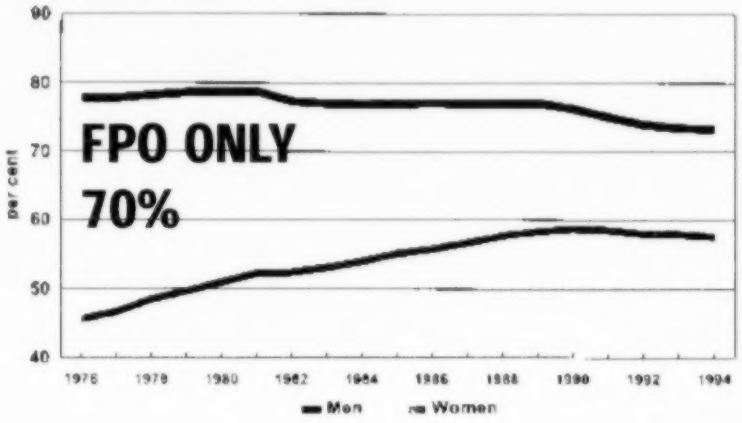
Since the mid-1980s, growth in the Canadian economy has been concentrated in the high-skill, knowledge-based sector. Between 1990 and 1995, there were 200,000 more jobs for university graduates, and 300,000 fewer jobs for those in the 25 to 44 age group with only secondary school qualifications. In today's increasingly knowledge-based environment, where most new jobs being created require university or college education, there is a strong incentive for young people to continue their studies.

The impact of structural change is magnified by the steadily increasing presence of women in the labor force. From 45 per cent in 1976, the proportion of working-age women employed in the labor force grew to 58 per cent in 1989 and has remained at this level since then. Meanwhile, the proportion of the male population in the labor force remained relatively constant from 1976 to 1989 (between 77 and 79 per cent), although it fell by 5 percentage points in the first half of the 1990s.

Many more entry level jobs in today's economy require postsecondary qualifications than in the past, particularly in sectors where women are traditionally concentrated. Teaching and nursing, for example, now require a university degree for entry or career advancement. More job opportunities for those without postsecondary qualifications appear to be available in traditionally male-dominated occupations, such as construction trades. In fact, the labor force has twice as many men who have not completed secondary school as women.

It is unclear whether this structural shift will have the same strong impact in future as it had in the mid-1980s when the knowledge-based sector grew dramatically. The degree of influence will depend on whether the knowledge-sector can continue to maintain its current rapid growth rate.

Labour force participation rate



Mixed messages

As we've seen previously, the labor market has been sending a clear message: in a knowledge-based economy, getting a degree is key to a good job.

But these days, that clear labor message is being contradicted by other — more pessimistic — economic signals. Evidence of positive labor market messages is provided by the OISE study, which reports that in 1994 almost 80 per cent of those surveyed felt that "the percentage of jobs for which employers require a degree or diploma will increase" — up from just under two-thirds of respondents in 1986.

These impressions are supported by studies which show that an ever growing proportion of new jobs require higher levels of postsecondary education. One such study[2] claims that more than half of the jobs created between 1990 and the year 2000 will require 16 years of education and training.

However, there are negative messages as well. There is some evidence of a polarization of jobs into "good" and "bad" classifications. The same study shows that almost 40 per cent of new

jobs will require less than 12 years education and training.

Little wonder that young people are now getting a mixed message. Not even university graduates — or the industries they work in — are immune from economic downturns, as is clear from the levels of unemployment that recent graduates experienced during the 1992 recession.

Still, university graduates are half as likely to be unemployed as their high school graduate counterparts. Unemployment among bachelor's graduates aged 25 to 44 has run several percentage points below the rate for those with secondary school qualifications over most of the past 20 years. And since 1993, the end of the last recession, unemployment among university graduates has dropped faster than for those with just high school education, until by 1995 unemployment among high school graduates, at 12 per cent, was almost double that of university graduates at 7 per cent.

Again, however, not all the news is so positive. The number of unemployed university graduates is much higher than in the past. More than 90,000 were unemployed in the midst of the last recession. And although that number has now dropped to just over 80,000, that compares to around 25,000 in the mid-1970s. In fact, the unemployment rate in 1995 was about 5 per cent among graduates aged 25 to 44, compared to rates of 3 to 4 per cent that were common in the 1970s. The increased numbers are largely a reflection of the tremendous growth in university attendance in the last two decades.

As far as income is concerned, the link between the level of education and salary remains strong. The median income of 1990 bachelor's graduates two years out of university was $30,000. By comparison, technical graduates collected $25,000, while graduates of trade or vocational programs earned $21,000. The median income for persons aged 20 to 29 with no degree, diploma or certificate was $13,600. Moreover, the average incomes of university graduates were not lowered by the latest recession while the income of individuals with only high school education fell.

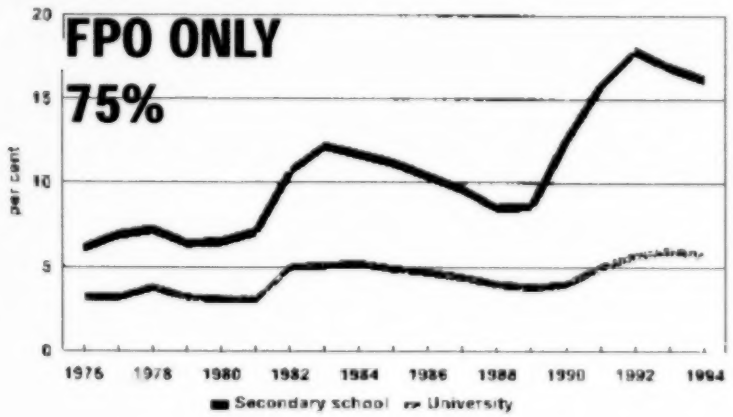
But recent studies[3] show that university graduates' earning power may be softening. A Statistics Canada study based on the Survey of Consumer Finances found that real income levels have declined over time, for graduates and non-graduates alike. While those results are contradicted in the National Graduate Surveys, which suggest that university graduates have maintained their earning power, a lack of any significant income growth may be discouraging some prospective students from continuing their studies — especially those who will have to accept greater debt burdens to finance their studies.

Another factor contributing to the mixed messages youth are receiving is the growing sense of insecurity among many employees and recent graduates. According to Statistics Canada's 1994 General Social Survey, almost one-quarter of employees surveyed stated that the threat of job loss or layoff was a source of excess worry and stress in the last 12 months.

Moreover, a focus group study for Human Resources Development Canada (Harley) concluded that "permanent" employment is no longer a reality that graduates can count on; instead, many face a series of contractual and part-time work arrangements — and, in fact, the Labor Force Survey shows that part-time employment among recent graduates has doubled in the last five years. However, much of the growth in part-time employment of recent graduates results from more graduates working part-time while continuing to study full-time and is not a growth in the number of graduates unable to find full-time work.

The latter is more apparent in the data from Statistics Canada's National Graduate

Unemployment rate by educational attainment (25-44 age group)



Surveys. In each survey year (1984, 1988, 1992), a relatively constant proportion (9 to 10 per cent) of graduates were working part-time two years after graduating. Furthermore, the Labor Force Survey shows that growth in part-time work among recent graduates has slowed significantly and even fallen back to 1992 levels for graduates aged 20 to 24.

Further complicating the message is the variation in employment across the country. Some graduates face a gloomy picture in the short term, even in the midst of relatively good employment prospects overall.

Public concerns

Perhaps not surprisingly, perceptions about employment prospects as revealed in public opinion surveys are at odds with the benefits demonstrated by the statistics. Again, the 1994 OISE survey (*Public Attitudes Towards Education*) is instructive. It shows that the general public thinks recent university graduates are just as likely to be unemployed as those without degrees. Similarly, the 1996 federal government youth study, *Take on the Future*, found that many young people are becoming disenchanted with their employment prospects even with a university degree. These attitudinal shifts are likely to have some negative impact on future student enrolment.

At a personal level, almost everyone knows graduates who are unemployed or underemployed. Such cases raise public concern and are often featured in media reports. The dry, confusing and confounded[4] statistics are no match for the more sensational and personal anecdotal evidence of problems. The media coverage heightens public concern and reinforces inaccurate public perceptions.

In the end, such perceptions can be more powerful than reality in influencing the decision to enrol. And as perceptions change, so too do the pressures that family and friends communicate to prospective students. At least among those prospective students who are the most uncertain of expected returns, shifts in public perceptions and the attention given by the media to the problems faced by a relatively small percentage of graduates could have tipped the scales against university.

On the other hand, the prospect that these mixed messages will be harmful to future enrolment decisions is not a given. There is still a strong consensus that postsecondary education is required to gain access to better jobs in the upper-tier service and manufacturing sectors, as well as agreement that most graduates obtain satisfactory jobs and that graduate satisfaction increases with time in the labor experience. Many more studies[5] are being undertaken which should provide clearer messages about the potential benefits and intrinsic rewards of degree attainment. Supporting and communicating the results of these studies should help to alleviate the impact that mixed messages have created for prospective students in recent years.

Foregone income

The alternative to studying is work, and the largest component of the total cost prospective students must bear is the loss of income from such employment — the opportunity cost.

A recent OECD report[6] shows that in Canada, the relative wages of youth (with and without degrees), compared to older cohorts of workers, fell dramatically in the late 1970s, stabilized in the mid-1980s and fell again in the early 1990s.

By lowering the opportunity cost of going to university, the decline in wages of the late 1970s contributed to the unexpected growth in university participation rates in the early 1980s. Similarly, stabilization of relative wages during the 1980s was a factor in the more stable participation rates universities are now experiencing. The very recent drop in the relative wages of youth is expected to place upward pressure on future participation rates.

In addition, the full-time labor force participation rates of youth have also fallen from almost 45 per cent to just over 30 per cent. Relatively fewer jobs and lower wages for those working are a clear indication that the opportunity costs of attending university are down significantly. At the same time, the earnings gap between those with university degrees and those with just secondary school qualifications is growing. Thus, the relative rates of return from a degree are increasing just when the opportunity costs of attending university are declining. If other factors are held constant, this should induce relatively more students to enrol in the future.

Paying for university

Decisions about whether to go to university also depend on the direct costs involved and on students' ability to finance their studies and repay any debt accumulated to obtain their degree.

Until recently, the cost of going to university seemed to have little impact on participation. In the late 1970s, real tuition costs declined, but so did partici-

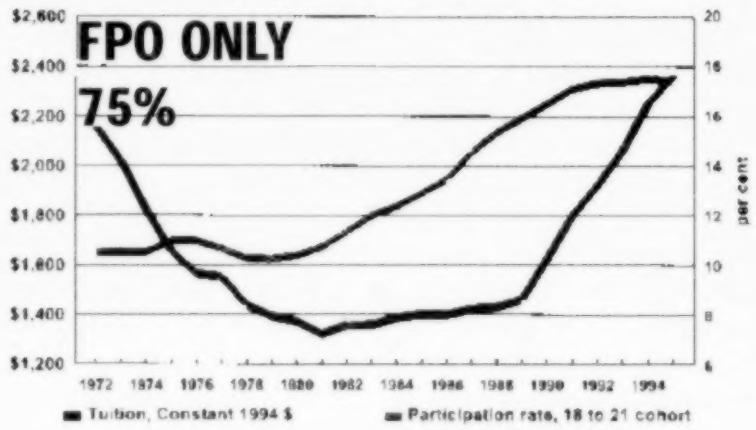
pation rates. During the 1980s, tuition fees increased by more than the rise in inflation, yet participation rates grew dramatically. Participation also went up when tuition increased sharply at the beginning of the 1990s, but subsequently leveled off while tuition continued to climb.

Perceptions and fears of increasing costs can have even more impact than actual increases. When real costs were declining in the 1970s, perceptions of growing costs were not an issue. Nor were they an issue for most of the 1980s, when real tuition costs kept pace with inflation. In the 1990s, however, not only have tuition fees risen dramatically but public statements by political leaders have contributed to a widespread impression that costs to students would increase even more in the future. One large university went so far as to place an ad in a major daily newspaper in 1995 to counter growing public concerns that tuition fees were about to double, when the increase in reality was in the 10 per cent range.

But tuition is only one of many expenses students face. They also have to buy books and course materials, and pay for food and living accommodations as well as travel to and from university.

To cover these expenses, students in the past traditionally relied on a combination of their own earnings, parental contributions, scholarships and loans. This was a reasonable scenario in the late 1970s and early 1980s, when personal savings rates and family incomes were on the rise. Since 1985, however, savings rates have plummeted, and family incomes have declined in the 1990s. The average family today faces tougher financial times, and is finding it increasingly difficult to help a child attend university.

Tuition fees in constant 1994 dollars

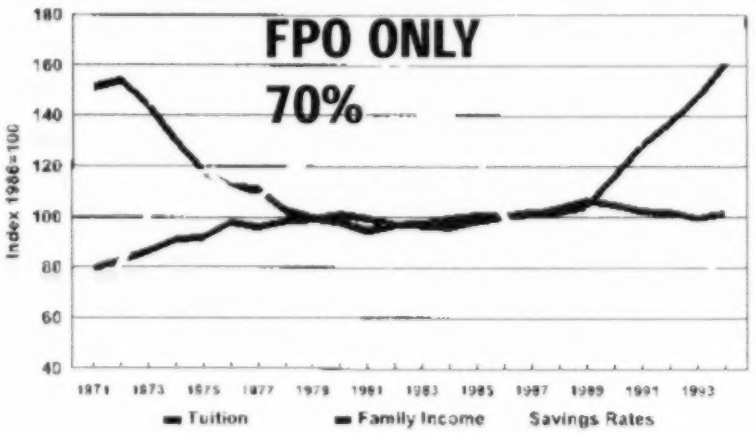


Many young people try to pay their way with earnings from part-time jobs. The proportion of youth working part-time while attending school leveled out at just over 40 per cent in the 1990s, up from about one-quarter of students in the late 1970s[7]. Unfortunately, less is known about the real income they earn. However, average earnings for all part-time workers are down considerably. Since the pool of youth in part-time work is comprised mainly of full-time students (80 per cent) then it is safe to assume student income has also declined. Students may therefore be less able to finance university costs through part-time work.

Perhaps the most important recent change affecting student finances has been the elimination of most provincial student grants programs, and their replacement by what is virtually an all-loans system of student aid. Some students have seen real cost increases of more than $3,000 a year since the beginning of the decade.

Together with an increase in weekly federal and provincial loan limits in

Tuition versus family income and savings rates



1994, this has led to sharp increases in the level of student indebtedness. It is estimated that the average debt on graduation will increase to $25,000 in 1998, up from $8,700 in 1990.

Policy choices

What impact have rising tuition and cuts in government grants to needy students and apparent reductions in resources available from family and work had on enrolments? One reaction is that students appear to be making adjustments in their choice of which university to attend. Data from various institutional student surveys and from the Ontario Universities' Application Centre show a slight increase in recent years in the proportion of students that are either living with their parents or attending universities closer to home. Clearly this creates opportunities for growth in some universities and real challenges for others.

Alternatively, as Finnie and Schwartz[8] conclude, changes in the cost of attending university (and, by extension, in the resources prospective students can draw from) will not change the decision to attend university for most students, but will affect those students for whom the choice between work and attending university is in close balance. As University of Western Ontario President Paul Davenport notes in his comments to their book, "any arbitrary reduction or cap on government contributions to student loans inevitably will reduce access to postsecondary education." From either perspective, there seems to be little doubt that recent changes in net costs would have contributed to the slowdown in enrolment growth.

In the future, the interplay between cost and employment may play a more critical role in determining enrolment patterns. It is interesting to note recent federal government actions designed to encourage youth to continue their studies. The 1997 federal budget brings significant improvements to student assistance programs including increases to the education and tuition tax credits; improved tax treatment of Registered Education Savings Plans; a longer deferral period for students experiencing difficulties repaying loans; and the public pursuit of alternative repayment options for student loans. However, the impact of these changes may not be felt for some years to come. The government did not introduce increased grant support for the neediest students, which would more directly encourage more such students to attend university.

It is clear that factors influencing university participation are both numerous and complex. Even if all the demand factors could be calibrated into a formula, it would be a limited predictor of enrolment or participation levels, because universities cannot simply provide space for all those that demand a spot.

Moreover, individual universities play different roles within their provincial postsecondary education system. Some are highly selective, and have many more applicants than available spots. Others provide access to a broader range of students and are therefore much more susceptible to changes in enrolment demand. But all have limited capacity — both human and physical. Actual enrolment levels are thus a function not only of demand but of how much space individual universities and the system as a whole can provide from year to year.

Constraints on growth

For Canada's universities, major capital expansion to meet demand is a thing of the past. Faced with massive reductions in government support, universities have adopted a strategy of enrolment management to achieve a match between demand and their ability to meet that demand.

The story of year-to-year variation in enrolment at individual universities is lost in aggregate data for the total system. However, an analysis of institutional data reveals substantial variation in enrolment at individual universities over the last 15 years.

Even during the 1980s, 10 to 20 per cent of institutions experienced enrolment declines in any given year. Recently, the phenomenon has become more pronounced: in each of the last few years, enrolment fell in almost half of Canada's universities.

Preliminary data on enrolment in fall 1996 show 21 universities with increases of more than 1.5 per cent and 22 with declines of more than 1.5 per cent, while the remaining 28 surveyed were stable, within the narrow band of plus or minus 1.5 per cent.

Never have so many institutions had declines — yet full-time undergraduate enrolment is relatively stable. One explanation for these concurrent trends is that the overall system is reaching a state of equilibrium, an inherent limit to growth, as numerous institutions achieve an optimal size under prevailing conditions.

Coping with cutbacks

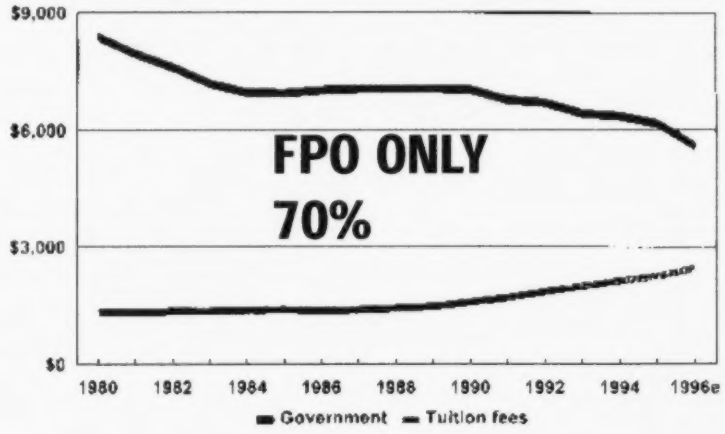
The notion of optimal size recognizes that there are trade-offs to be made in achieving the best fit between demand from students, and the human and physical resources a university has at its disposal (classrooms, research facilities, faculty, etc.).

From this perspective, reduced government funding of universities in the last decade has severely constrained the ability of universities to meet demand.

In the early 1980s, about 85 per cent of university operating revenues came from government financing, while the remaining 15 per cent came from tuition and other sources. Subsequent government spending cutbacks radically altered this picture. Between 1980 and 1995, income from government dropped by more than 25 per cent per student (in constant 1986 dollars) and now covers only 70.5 per cent of operating revenues. These major cutbacks have effectively precluded constant growth strategies at many universities.

There is unlikely to be significant improvement in the public policy environment in the short term that would reverse the funding reductions. In a growing economy, with increasing tax revenues, governments could afford to invest in university education. In the 1960s and 1970s, the thrust of public policy was to increase public investment in university education and to generate the associated economic and social returns. But tough economic times brought a change in political priorities that translated into a concerted attack on the deficit and a withdrawal of government funding of universities.

General operation income per FTE student in constant 1986 dollars



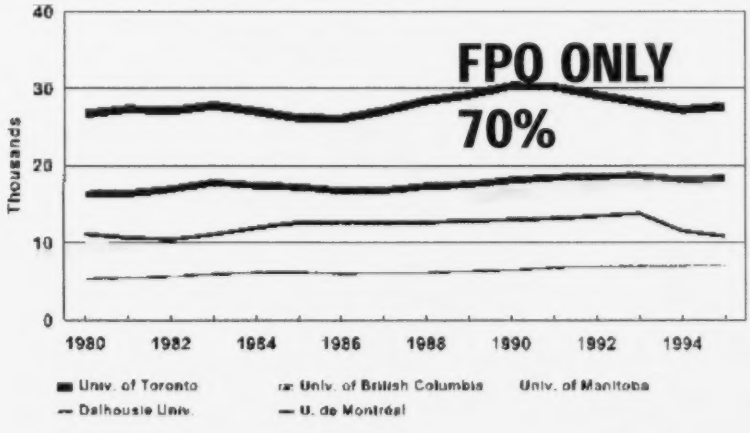
Prospects look considerably brighter in the medium term, as more provinces can be expected to reach surplus positions. They will then be looking for ways to sustain future growth, such as an investment in human capital through education. The federal government, with its recent budget announcement of the Canada Foundation for Innovation, is also beginning to recognize the growing importance of investing in people and in higher education.

Management strategies

Meanwhile, to cope with cutbacks in government support, universities have adopted new approaches to balancing supply and demand.

In previous decades, rising demand was accommodated through expansion of plant. Capital investments for this purpose were reflected in uneven enrolment growth patterns — short spurts of growth to use up newly created capacity, followed by a leveling off in the number of students for a four or five-year period.

Full-time bachelor's enrolment at large institutions



More recently, funding reductions have forced universities to emphasize more efficient use of their facilities. But there is a limit to efficiency. At some point, maximum capacity is reached, maximum efficiency is achieved, and no more growth in enrolment is possible or desirable.

At this point, universities may adopt a second coping strategy: setting enrolment targets at levels that can be handled with available plant. A review of the data shows such strategies in operation.

Numerous large institutions (those with more than 8,000 students) have reached a size they apparently consider ideal. The larger the institution, the less likely it is to be in a growth phase. In fact, 10 of the 14 slowest growing institutions — those that had between -0.2 and 1.9 per cent average annual growth over the last 15 years — had more than 8,000 students in 1980.

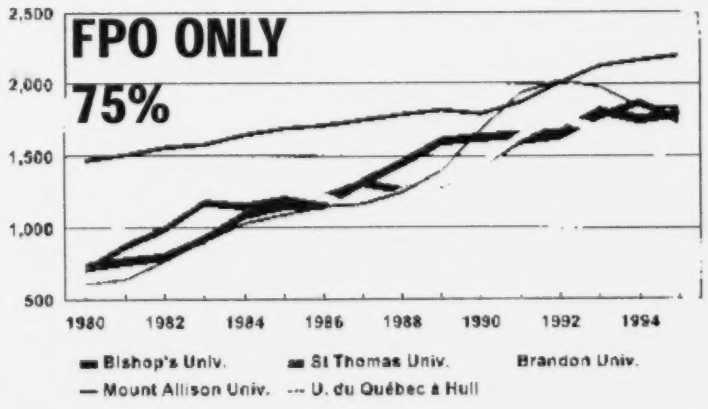
Many of the smaller institutions (under 2,500 students) also seem to have reached what they see as an optimal size. Despite the fact that the smaller institutions have generally grown faster, once they reach 2,000 to 2,500 students, many plateau. For example, of the 21 institutions that have more than doubled in size, most (17) had fewer than 2,000 students in 1980 and 15 of those institutions were still below the 2,000 mark in 1995.

These strategies recognize that continuous growth is not always possible and that finding an equilibrium — a sustainable level — can be a valid goal.

Another strategic approach adopted by universities has been to raise tuition fees. In the past, government policy ensured that fee levels were either frozen to afford greater access, or increased by no more than the cost of living. But the focus of provincial governments has shifted from this accessibility goal, and since the 1980s, fees have been allowed — or even mandated — to rise by more than inflation.

But raising tuition means treading a careful line. As universities become more reliant on tuition revenues, they also become more susceptible to enrolment fluctuations. With fee increases, sensitivity to pricing enters the picture. Any resulting drop in enrolment can offset the gains from higher fees. In fact some universities are currently faced with declining revenues from both grants and tuition — and the effects can feed one another, as operating grants are still tied to enrolment in some provinces.

Full-time bachelor's enrolment at smaller institutions



Postsecondary choices

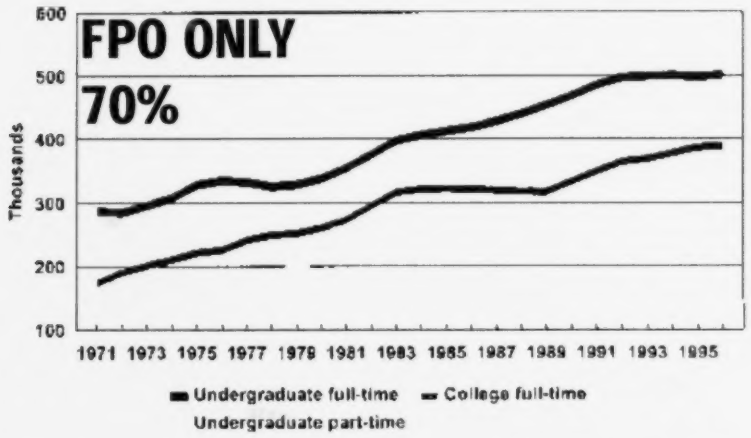
This analysis of demand and supply would not be complete without exploring whether full-time enrolment is leveling off because students are choosing other postsecondary routes. Are students switching to part-time status, for example, or are they flocking to some other part of the higher education system? Not according to the data.

The recent leveling of full-time undergraduate enrolment cannot be explained by the hypothesis of a massive switch to part-time from full-time study. In fact, part-time undergraduate enrolment declined in each of the last four years, from a peak of 274,000 in 1992 to just 212,000 in 1996 (the same number of part-time students as in 1980).

Another explanation often offered is that students are choosing in ever increasing numbers to attend college rather than university. But this anecdotal evidence is not backed by the facts.

Enrolment in colleges grew faster than in universities in the 1970s, as capacity in the college system was being expanded. But college enrolments did not grow at all from 1983 to 1989, following the 1982 recession. In the early 1990s, growth in college enrolment resumed, and during the period when university enrolments leveled off, between 1992 and

Total enrolment by level of education



1995, college enrolments were up six per cent. Blurring this picture is the fact that some one-year trade or vocational certificate programs now require completion of secondary school, and students in these programs are being counted in the college sector when formerly they were included in the trade and vocational sector.

The net result is that the gap between college and university undergraduate enrolment has narrowed somewhat. About three in nine full-time students attended colleges in 1971, while the current figure of 389,000 accounts for four out of nine postsecondary students.

However, this does not represent a drastic shift in attendance patterns of students bound for postsecondary qualifications. Although it is not possible to examine demographic profiles of college students in detail as can be done with university students, it appears from information available from Statistics Canada that older students rather than those aged 18 to 21, are driving enrolment growth in colleges. In fact, while preliminary data for 1994 show a slight increase in the number of college students in the 18 to 21 age group, Statistics Canada officials warn that part of this growth may result from the aforementioned changed program definitions.

Moreover, in the last year or two, growth in college enrolment has slowed significantly, and the preliminary data for fall 1996 show the same growth rate of half of one per cent for both colleges and universities.

Another theory that can be ruled out is that the enrolment picture is being skewed by the number of Canadian students going abroad to study. From available reports, it appears that this number has been stable in recent years.

Reports from the United Nations Educational, Scientific and Cultural Organization[9] indicate that the number of Canadians attending postsecondary institutions outside Canada increased from 19,300 in the mid-1980s to 27,400 in the early 1990s, an increase of more than 40 per cent. While more recent data is not available from UNESCO, the Institute for International Education provides updates on Canadians studying in the United States. That data shows that the number of Canadians in the U.S. remained stable at 23,000 from 1993 to 1995[10]. Historically, the U.S. has been the destination for more than 80 per cent of Canadians who study outside this country, so trends there provide a very solid estimate of the overall trend.

These data suggest that, at the very point enrolment in Canadian universities stabilized, so too did the number of Canadians studying abroad.

At some three per cent of the total number of full-time undergraduates in Canada, international students cannot be viewed as a major factor in either the growth or decline of university enrolment.

While their presence greatly enriches the learning environment on campus and many universities are now energetically seeking students in foreign markets, the number of full-time undergraduate international students at its peak in 1992 was just 22,000. That figure fell to 14,000 in 1987, then climbed back to 17,000 in 1991, and dropped again to just over 14,000 in 1995. Early indications for 1996 suggest that enrolment of visa students has remained stable at that level.

Conclusions

No single factor is causing the current plateau in full-time undergraduate enrolment. But almost all of the inter-related factors that influence enrolment are currently headed in one direction: a flat line. These factors are:

- the size of the 18-to-21-year old population, which is currently stable;
- social attitudes toward the value of a degree have peaked, and may even be on the decline;
- an economy that is still recovering from the 1992 recession is not grow-

ing strongly and therefore has no major impact on enrolment;

- tuition costs have gone up significantly, creating a barrier for some students;
- family income has not increased, and personal savings rates have declined sharply;
- student assistance has become mainly loan-based in the last few years, leading students who are debt averse to increasingly question their decision to enrol in university;
- recent graduates face the opportunity to earn only the same real income as did graduates in the 1980s;
- reductions in government support — along with supply management strategies adopted by universities in response to reduced public funding — have also served to dampen enrolment growth.

For universities and policy makers alike, the most important question is clear: what enrolment patterns can be expected in the future? The long-term answer will depend partly on actions that could be taken to remove barriers to university education.

In the short-term, though, over the next five years, it is difficult to envision tremendous declines in participation — yet it is equally difficult to foresee much growth. Stability in enrolments will likely prevail.

A growth mentality has been fostered by nearly 20 years of steadily rising enrolment, but it is unrealistic to expect constant growth — in fact, without significant new capital investments, many Canadian universities probably could not handle continued growth. Achieving equilibrium — an optimum rather than a maximum — is a valid goal in today's world of sustainable development.

Despite the relative stability that characterizes the overall system, there is widespread variation between individual institutions because of the way the dimensions of supply and demand play out. Some universities will face tremendous challenges maintaining current enrolment levels, let alone meeting growth targets. For others, typically highly selective universities in major metropolitan areas with a larger pool of prospective students, meeting future enrolment targets should be easier.

Having taken stock of some of the causes that affect the enrolment decision, it is clear there is some room for intervention. Young people need access to more accurate information, so that their perceptions are more in tune with reality.

The relative success of university graduates in the labor market, and the kinds of jobs that a global knowledge-based economy produce, should continue to provide strong signals to prospective students. Providing clearer messages about the ongoing value of a degree would enhance the drawing power for universities.

We also need to remove invisible barriers to a university education. For example, the fact that many universities have reached capacity may be a barrier to students who lack the resources to attend a university outside their home town or region where capacity has not been reached. Appropriate student assistance could alleviate the costs involved. At the same time, creating a public policy environment where universities can expand to meet demand would help ensure that students are not denied access for lack of space.

Future research directions

This descriptive study has explored a range of demand and supply factors that are affecting university enrolment at the undergraduate level, but it lays no claim to being the final word. Many questions remain unanswered, and there is a pressing need to gather data in certain areas that have received little attention to date. Some valuable steps are now being taken in this direction.

It is clear that we are missing some key data elements that would help us identify important relationships. For example, Statistics Canada data do not have a unique student identifier that would enable tracking of student progress. Moreover, without a long time series on years of study, we cannot comment on the degree to which enrolment trends are driven by new students entering the system or by the increased retention of students already enrolled. Statistics Canada is now working on a pilot project to create an enhanced student information system and to improve their ability to track students under the current system. This is a valuable step in the right direction.

In the United States, surveys of freshman classes at a national sample of colleges and universities have been conducted annually since 1966, and there have been annual follow-up surveys of freshmen two and four years after entering university since 1980. In Canada, individual university surveys of incoming students, all undergraduate students and graduating classes are becoming more

common and are beginning to provide insights into the decisions youth make about entering university and staying enrolled. A national survey of undergraduate students is now being planned for January 1998 by AUCC, the Council of Ontario Universities and the Institute for Social Research at York University.

More research is needed into factors which affect student choice. Messages could then be tailored to prospective students who are at risk of changing their decisions based on erroneous information. Students are often unaware or ill-informed about labor markets and about the educational requirements to gain access to those markets. They need better and less confusing information than is presently available.

Acknowledgments

Many thanks to Sid Gilbert of the University of Guelph for numerous enlightening discussions, debates and feedback on drafts of this paper. The author would also like to gratefully acknowledge the input of many registrars and institutional researchers from AUCC member universities across the country, and the staff of the Centre for Postsecondary Education at Statistics Canada who provided valuable comments and data.

Responsibility for the analysis and presentation of the information and for any errors or omissions rests solely with the author. Preliminary data on university enrolment in 1995/96 and 1996/97 was collected by AUCC in collaboration with the Association of Atlantic Universities, the Conference of Rectors and Principals of Quebec Universities, the Council of Ontario Universities and a sample of universities from Western Canada.

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RESEARCH

Volume 2, Number 1
April 1997
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ISSN 1201-639X

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